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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,521	12/31/2003	Brian H. Sherman	MOL-001	1975

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EXAMINER	
KIM, EUNHEE	
ART UNIT	**PAPER NUMBER**
2123	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/750,521	SHERMAN ET AL.	
	Examiner	Art Unit	
	Eunhee Kim	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30, 32 and 34* is/are pending in the application.

4a) Of the above claim(s) *20-30 and 34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 05/29/2008 has been received and considered. Claims 1-19 and 32 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-19 and 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US patent No. 6,636,781), in view of Eisenberg et al. (Computationally-Enhanced Construction Kits for Children: Prototype and principles).

As per claim 1, Shen et al. teaches a modeling system node for use in assembling a plurality of structural elements comprising:

a node element (Fig. 1A-1B) comprising:

a body (Fig. 1A-1B);

one or more connection ports disposed relative to the body, at least one connection port capable of being coupled to an adjacent structural element (Fig. 2-3 and 6, 7A and 7B); and

a computational unit disposed within the body, wherein the computational unit receives information of physical characteristics of the node element from the connection port (Fig. 4 and the description, Col. 5 lines 1-53); and

a bond element (Fig. 1A-1B) comprising:

a body (Fig. 1A-1B);

a first and a second connection port disposed relative to the body, at least one of the first and the second connection ports capable of being coupled to the node element (Fig. 4 and the description, Col. 5 lines 1-53); and

a computational unit disposed within the body, wherein the computational unit receives information of physical characteristics of the bond element from at least one of the first and second connection ports (Fig. 4 and the description, Col. 5 lines 1-53).

Shen et al. fails to teach explicitly a molecular modeling system and a communications device capable of providing data from the computational unit to an external computer system.

Eisenberg et al. teaches a molecular modeling system (Introduction) and a communications device capable of providing data from the computational unit to an external computer system (Chapter 2, "Communication between construction Kits and desktop machine").

Shen et al. and Eisenberg et al. are analogous art because they are both related an assembling model.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to have included the representation of a molecular model of Eisenberg et al. in a distributed control and coordination of autonomous agents system of Shen et al. because the representation of a molecular model is a well known process in an assembling model, and Eisenberg et al. teaches an improved model that perform physical representations of simple programs controlling lights, sounds, and wheeled vehicles (Conclusion).

As per claim 2, Shen et al. teaches wherein a communications device is capable of providing node element information (Col. 4 lines 3-20, Col. 9 lines 65-67, Col. 10 lines 1-12, Col. 14 lines 41-55).

As per claim 3, Shen et al. teaches wherein the adjacent structural element comprises a bond element (Fig. 1A-3).

As per claim 4, Shen et al. teaches wherein the computational unit of the node element uses the information of physical characteristics to determine a topology of the node element (Col. 10 lines 44-67).

As per claim 5, Shen et al. teaches wherein the information of physical characteristics is obtained from a sensor disposed within the node element (Fig. 5-10 and the description, Col. 4 lines 3-20).

As per claim 6, Shen et al. teaches wherein the sensor detects information about at least one of movement of the node element with respect to a bond element, rotational orientation with respect to the connection port, movement of the node element with respect to one of the structural elements, position or movement of the node element with respect to an external spatial orientation reference point, and physical stress upon the node element (Fig. 5-10 and the description, Col. 4 lines 3-20, Col. 5 lines 55-62, Col. 8 lines 9-14, Col. 10 lines 5-25).

As per claim 7, Shen et al. teaches wherein the sensor comprises at least one of a rotational sensor, an accelerometer, a compass, an inclinometer, a magnetometer, and a gyroscope (Col. 5 lines 55-62).

As per claim 8, Shen et al. teaches wherein the computational unit receives the information of physical characteristics from the sensor (Fig. 4 and the description, Col. 5 lines 55-62, Col.).

As per claim 9, Shen et al. teaches wherein the sensor stores or provides information of changes in physical characteristics of the node element (Col. 8 lines 9-14, Col. 10 lines 13-25, Col. 12 lines 21-30).

As per claim 10, Shen et al. teaches wherein the node element further comprises a control device that manipulates a physical characteristic of the connection port (Fig. 4 and the description, Col. 8 lines 9-14, Col. 10 lines 13-25, Col. 12 lines 21-30).

As per claim 11, Shen et al. teaches wherein the control device comprises an actuator, a vibrating unit, or a light emitting diode.

As per claim 12, Shen et al. teaches wherein the communications device transfers data from the computational unit to one of the structural elements (Fig. 4 and the description, Col. 6 lines 4-37, Col. 8 lines 9-14, Col. 10 lines 13-25, Col. 12 lines 21-30).

As per claim 13, Shen et al. teaches wherein the communications device provides data from the computational unit to an external computer system (Col. 1 lines 26-31).

As per claim 14, Shen et al. teaches wherein the communications device exchanges information between the external computer system and the computational unit (Col. 1 lines 26-31).

As per claim 15, Shen et al. teaches a power transmission interface capable of transferring power from an external source through at least one of the connection ports and to the node element (col. 4 lines 43-47, Col. 6 lines 1-3).

As per claim 16, Shen et al. teaches wherein the communications device comprises a wireless transmitter (Col. 4 lines 48-57).

As per claim 17, Shen et al. teaches a modeling system for use in assembling a plurality of structural elements (Fig. 1A-1B) comprising:

a bond element (Fig. 1A-1B) comprising:

a body (Fig. 1A-1B);

a first and a second connection port disposed relative to the body, at least one of the first and the second connection ports capable of being coupled to an adjacent structural element (Fig. 2-3 and 6, 7A and 7B);

a computational unit disposed within the body, wherein the computational unit receives information of physical characteristics of the bond element from the first or second connection ports (Fig. 4 and the description, Col. 5 lines 1-53); and

a node element (Fig. 1A-1B) comprising:

a body (Fig. 1A-1B):

one or more connection ports disposed relative to the body, at least one connection port capable of being coupled to the bond element (Fig. 4 and the description, Col. 5 lines 1-53); and

a computational unit disposed within the body, wherein the computational unit receives information of physical characteristics of the node element from the connection port (Fig. 4 and the description, Col. 6 lines 4-37, Col. 8 lines 9-14, Col. 10 lines 13-25, Col. 12 lines 21-30).

Shen et al. fails to teach explicitly a molecular modeling system and a communications device capable of providing data from the computational unit to an external computer system.

Eisenberg et al. teaches a molecular modeling system (Introduction) and a communications device capable of providing data from the computational unit to an external computer system (Chapter 2, "Communication between construction Kits and desktop machine").

As per claim 18, Shen et al. teaches a sensor that detects information about at least one of movement of the bond element with respect to a structural element, rotational orientation with respect to the connection port, position or movement of the bond element with respect to an external spatial orientation reference point, and physical stress upon the bond element (Fig. 5-10 and the description, Col. 4 lines 3-20, Col. 5 lines 55-62, Col. 8 lines 9-14, Col. 10 lines 5-25).

As per claim 19, Shen et al. teaches wherein the sensor comprises at least one of a rotational sensor, an accelerometer, a compass, an inclinometer, a magnetometer, and a gyroscope (Fig. 5-10 and the description, Col. 4 lines 3-20, Col. 5 lines 55-62, Col. 8 lines 9-14, Col. 10 lines 5-25).

As per claim 32, Shen et al. teaches a structural modeling kit for use in assembling a plurality of structural elements (Fig. 1A-1B) comprising:

One or more bond elements, each comprising:

a body (Fig. 1A-1B); and

a first and a second connection port disposed relative to the body of the bond element (Fig. 1A-5); and

one or more node (Fig. 1-2) element comprising:

a body (Fig. 1A-1B);

a node connection port disposed relative to the body of the node element, capable of being coupled to the bond element (Fig. 1A-5); and

a computational unit disposed within the body of the node element, wherein the computational unit receives information of physical characteristics of the node element from the node connection port (Fig. 4 and the description).

Shen et al. fails to teach explicitly wherein at least one of the node elements and the bond elements comprises a communications device capable of providing the information of physical characteristics to an external computer system; and

wherein at least one node element and at least one bond element are coupled to correspond to at least a portion of a molecular model.

Eisenberg et al. teaches wherein at least one of the node elements and the bond elements comprises a communications device capable of providing the information of physical characteristics to an external computer system (Introduction); and

wherein at least one t-he-node element and at least one bond element are coupled to correspond to at least a portion of a molecular model (Chapter 2, "Communication between construction Kits and desktop machine").

Response to Arguments

3 Applicant's arguments filed 05/29/2008 have been fully considered but they are not persuasive.

Examiner respectfully withdraws Claim Objection in view of the amendment and/or applicant's arguments.

Applicants have argued that:

> Shen does not disclose or suggest that any of these modules includes a communications device that is capable of providing data from a computational unit to an external computer system as required in the modeling system recited in amended independent claims 1 and 17 and their dependent claims.

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection (Eisenberg et al. which was previously cited on an IDS).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunhee Kim whose telephone number is 571-272-2164. The examiner can normally be reached on 8:30am-5:00pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Eunhee Kim/
Examiner, Art Unit 2123

/Paul L Rodriguez/
Supervisory Patent Examiner, Art Unit 2123